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ON THE COMPOSITION OF A NATURAL OIL FROM WILSON COUNTY, KANSAS.

By F. B. DAINS, State University.

During the last few months some very successful experiments have been made in the vicinity of Neodesha in boring for oil and gas. Nine wells have been drilled in Wilson county, and the work of prospecting is still going on. A wealthy capitalist of Pittsburg, Pa., has become interested in this new field, and already at least \$30,000 have been expended in the work. Of the nine wells bored, one about 16 miles north of Neodesha and another about six miles southwest have proved worthless. Five of the seven productive wells are oil wells and two are gas wells.

The Norman well is about 800 feet deep; has yielded as much as two barrels of oil per hour, and with constant pumping for several days at the rate of 18 to 24 barrels per day.

The Demoss well, 842 feet in depth, had about the same capacity as the above, but the oil gushed at intervals of 30 minutes.

In the Pierce well, an oil rock was struck at about the same depth as in the others, but the boring was continued to a depth of 1,000 feet in order to find a thicker oil-bearing stratum. At this depth the so-called flint was struck.

In the Haag well gas was struck in great quantities, so that it was pronounced by experts to be the greatest gas well west of the Mississippi.

The Hopkins well struck a different kind of oil. It is much thicker and heavier. After shooting the well an abundance of salt water came up, so that now it is a salt-water artesian well.

The Shoemaker well is a good gas well.

The Moulton well seems to strike the same rock-bearing stratum as the first three mentioned.

There are three wells now in the process of boring. Much of the work that has been done has been with the object of finding definitely what the limits of the oil-field are. The rock is from 10 to 25 feet in thickness and of finer structure than the Pennsylvania rock. Some prospecting has been done at Thayer, where a well 1,000 feet in depth was abandoned after proving that nothing of value could be obtained. Further down the valley, in the vicinity of Parsons and of Cherryvale, and also at Liberty, considerable interest is manifested, and the land is being used for boring purposes. At Cherryvale, as is well known, the gas that is obtained is used in the streets, stores, and residences. It is a cheap fuel, and with the Welsbach, or some other incandescent lamp, it produces a beautiful, clear, steady light. I am indebted to Mr. Wm. Hill, of Neodesha, for many of the facts above stated.

A sample of the oil from well No. 1, the Norman well, situated near the Verdigris bridge, has been received at the chemical laboratory of the state university, and has been examined by fractional distillation.

The crude oil is of a greenish-brown color, and has a specific gravity of .850.

The oil was fractionated, with the following result:

50 to 140.....	90cc, 8.1	per cent.
140 to 160.....	70cc, 6.37	per cent.
160 to 205.....	167cc, 15.18	per cent.
205 to 250.....	125cc, 11.36	per cent.
250 to 300.....	153cc, 1.4	per cent.
300 to 350.....	66cc, 6	per cent.
350 and above:		
1 frac.....	120cc, 11	per cent.
2 frac.....	70cc, 6.36	per cent.
3 frac.....	15.45	per cent.

Several specific gravity determinations, made on the different distillates, gave the following results:

Temperature 50 to 120.....	0.8082
Temperature 120 to 160.....	0.8282
Temperature 160 to 185.....	0.8542
Temperature 185 to 205.....	0.8763
Temperature 205 to 250.....	0.8944
Temperature 250 to 275.....	0.9144
Temperature 275 to 300.....	0.9220
Temperature 300 to 350.....	0.9249
Temperature above 350:	
1 at	0.9424
2 at	0.9518
3 at	0.9140

The quantity of light oils is small—about 9 per cent., while the distillates between 150 and 300, usually considered as burning oils, form nearly 50 per cent. of the whole. Above 300 there distill over products suitable for lubricating purposes. From the higher portions above 375, paraffin solidifies out on cooling in a freezing mixture.

The high heat “cracked” or split up into lighter oils the last portion that passed over. This was shown in the way it distilled and in its specific gravity, 0.9140. This cracking increases the amount of illuminating oils. Below 275 the amount of unsaturated hydrocarbons is unusually small for petroleum, while above that temperature the percentage of unsaturated bodies increases.